Scientific Museum.

Asphyxia.

As this is the season when sudden deaths from drowning &c., are very common. We publish the following modes of treatment which will be found to be invaluable :—

Cautions.—1. Lose no time. 2. Avoid all rough usage. 3. Never hold the body up by the feet. 4. Nor roll the body on casks. 5. Nor rub the body with salt or spirits. 6. Nor inject tobacco-smoke or infusion of tobacco.

Restorative Means.—If apparently drowned send quickly for medical assistance; but do not delay the following means; 1. Convey the body carefully, with the head and shoulders supported in a raised position to the nearest house. II. Strip the body, and rub it dry; then wrap it in hot blankets, and place it in a warm bed in a chamber. III. Wipe and cleanse the mouth and nostrils. IV. In order to restore the natural warmth of body—

I. Move a heated covered warming-pan over the back and spine. 2. Put bladders or bottles of hot water, or heated bricks to the pit of the stomach, the arm pits, between the thighs, and to the soles of the feet. 3. Foment the body with hot flannels: but, if possible. 4. Immerse the body in a warm bath, as hot as the hand can bear without pain, and this is preferable to the other means for restoring warmth. 5. Rub the body briskly with the hand; do not, however, suspend the use of the other means at the same time.

V. In order to restore breathing introduce the pipe of a common bellows (when the apparatus of a doctor is not at hand) into one nostril, carefully closing the other and the mouth; at the same time drawing downwards and pushing gently backwards, the upper part of the windpipe, to allow a more free admission of air; blow the bellows gently, in order to inflate the lungs, till the breast be a little raised; the mouth and nostrils should then be set free, and a moderate pressure made with the hand upon the chest. Repeat this process till life appears. VI. Electricity to be employed early by a medical assistant. VII. Inject into the stomach, by means of an elastic tube and syringe, half a pint of warm brandy and water, or wine and water. VIII. Apply sal volatile or hartshorn to the nostrils.

If Apparently Dead from Intense Cold.—Rub the body with snow, ice, or cold water. Restore warmth by slow degrees; and, after some time if necessary, employ the means recommended for the drowned. In these accidents it is highly dangerous to apply heat too early.

If Apparently Dead from Noxious Vapors, &c.—1. Remove the body into a cool fresh air. 2. Dash cold water on the neck, face, and breast frequently. 3. If the body be cold, apply warmth, as recommended for the drowned. 4. Use the means reccommended for inflating the lungs, in direction V. 5. Let electricity (particularly in accidents from lightning) be early employed by a medical assistant.

If Apparently Dead from Intoxication.—Lay the body on a bed, with the head raised; remove the neckcloth, and loosen the clothes. Obtain instantly medical assistance, as the treatment must be regulated by the state of the patient; but in the mean time apply clothes soaked in cold water to the head, and bottles of hot water, or hot bricks to the calves of the legs, and to the feet.

If Apparenfly Dead from Apoplexy.—The patient should be placed in a cool air, and the clothes loosened, particularly about the neck and breast. Bleeding must be early employed by a medical assistant; the quantity regulated by the state of the pulse. Cloths soaked in cold water, spirits, or vinegar and water, should be kept applied to the head, which should be instantly shaved. All stimulants should be avoided. In cases of *coup de soleil*, or strokes of the sun, the same means to be used as in apoplexy.

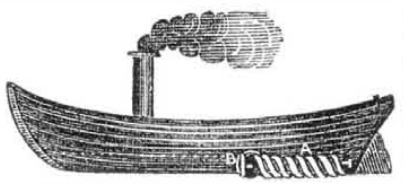
How to Enlarge Vegetables.

A vast increase of food may be obtained by managing judiciously, systematically carrying out for a time the principle of increase. Take for instance a pea. Plant it in very rich ground. Allow it to bear the first year, say half a dozen pods only. Remove all others.—Save the largest single pea of these. Sow it in the next year, and retain of the product three pods only. Sow the largest one the following year, and retain one pod. Again select the largest, and the next year the pod will by this time have trebled its size and weight. Ever afterwards sow the largest seed. By these means you will get peas, (or any thing else,) of a bulk of which we at present have no conception.

History of Propellers and Steam Navigation.

[Continued from page 312.]

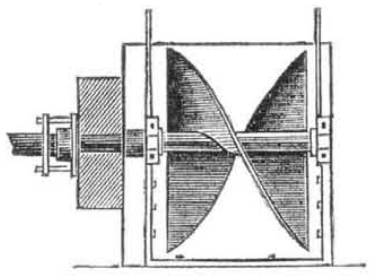
Fig. 63.



It is not possible for us to assign the invention of the screw propeller to the first inventor, whoever he may be. The screw has been claimed by America and England. Mr. Hutchings, in his defence of John Fitch, exhibits his steamboat with side wheels and a screw at the stern likewise. As he writes only from memory, his account is erroneous, for he states that Robert Fulton was on the boat with Fitch in New York in 1776 or '71, whereas Fulton was then in Europe. From all we can gather on the subject, it appears that the screw propeller was propsed in America very many years ago, but the great want of a scientific paper, like the Sci. Am., not being then known, the invention has not been stereotyped as a matter of illustrated history.

The accompanying, fig. 63, was the plan of propeller proposed by Woodcroft, having one spiral, A B, on each side; but this shows merely the place where the screw was placed. The form of the screw was that of an increasing pitch—the correct form: an account of it was first published by Partingdon, in 1834. It was a screw wrapped round a shaft, and the increasing pitch of the blade enabled each part to act upon the water. The principle of this invention consists in making the water a nut and the spiral a screw, acting upon the water, to propel the vessel.

Fig. 64.



It was not until 1839 that the principle of propelling steamships by a screw blade, was fairly brought before the world, and for this we are indebted, as almost every adult will remember, to Mr. F. P. Smith, of London. He was the man who first made the screw propeller practically useful. Aided by spirited capitalists he built a large steamer named the "Archimedes," and the results obtained from her at once arrested public attention. This engraving represents the double threaded screw employed on the Archimedes. A large proportion of the complete screw having no useful effect, a great portion of the central part of this one was cut away, so that the form should offer but little resistance to the water, yet act upon it by the blades, A A, so as to obtain full power in propulsion; but this screw had not a very good effect upon the water, as the arms formed by the ends of the blades obstructed its free passage. Although the trial of the Archimedes was very satisfactory, it was evident that there was a great deal of what is termed *slip* by such a screw, and this fact was always made manifest when the vessel was backed.

We have room on our subscription books for a few more names.

Manufacture of the Chromate of Potash, Lead, and Lime.

Having described some of the uses of the chromate of potash in our last, we now present a new process for the manufacture of the bichromate of potash, which was brought before the Acdemy of Science at Paris a few years ago, and stated to be a cheaper process than the old one.

Mix together in a cylinder moving on its axis, chalk and the mineral chromes, previously reduced to a fine powder, and sifted through very fine sieves, for it is important to the success of the operation, that it should be reduced to an impalpable powder; then calcine the mixture for nine or ten hours at a red heat, on the hearth of a reverberatory furnace, taking the precaution to keep the mass about two inches in depth, and expose the whole of it ten or twelve times to the surface. After a little time, if the flame has been sufficiently oxidizing, the change to oxide of chrome into the chromate of lime will be accomplished; of this you can be certain by its appearance, which should present a greenish yellow colour, and should dissolve completely in hydrochloric acid, with the exception of the silicious particles.—Take this porous and friable mass, grind it, wash it in warm water, and to the liquid, kept continually agitated, add sulphuric acid until the liquor reddens litmus. A total conversion of the chromate of lime into a bichromate is thus effected, together with the formation of a little sulphate of iron. To this liquor add chalk and water, for the purpose of separating the iron. The bichromate of lime undergoes no change. After a short time, allowed for setting, draw off the clear supernatant liquor, which contains only bichromate of lime, and a very little sulphate of chrome. In this state it can be immediately made use of to produce the bichromate of potash, the chromates of lead, muter, or basic, and even the chromates of zinc.

It is fonnd, by the use of this process, that it is not necessary to convert the bichromate of lime into the bichromate of potash to procure the insoluble chromate of lead, zinc, baryta, &c., which fact causes the great economy in the preparation of those products, as it suffers only to make a double decomposition between the bichromate of lime and the acetate or subacetate of lead, the chloride of zinc, &c. As to the bichromate of potash, it may be produced not less easily and not less pure by adding a solution of carbonate of potash, free from soda, to the bichromate of lime, easy to wash, and bichromate of potash in solution, which may be concentrated and crystalized free from organic matters, and without the liberatien of hydrochloric acid.

Chemical Constituents of Iron.

In his evidence before the Strength of Iron Commissioners, says the London Mining Jour., Mr. Morries Stirling states, that iron in its pure state is malleable, and that it is a combination of carbon with iron which produces cast-iron. In addition to carbon, the cast iron in this country contains silica, lime, magnesia, alumina, occasionally some of the phosphates and other admixtures; but iron made from magnetic ores is much purer. The strength of cast iron depends upon its freedom from impurities, and upon the proportion of carbon it contains. The strongest cast iron contains about three per cent. of carbon, or according to Mr. Charles May, when the carben is in the smallest proportion that produces fluidity; a larger proportion tends to make the iron soft and weak, and a smaller hard and brittle. Mr. Glynn states, that the strongest iron generally shows a clear grey, or sligthly mottled fracture, and he considers that the color indicates the combination of carbon with iron which produces the greatest strength. Mr. Stirling states, that while color is admissible as a test of strength, it is not so of chemical constitution, for though dark colored iron is usually brittle, yet black iron when chilled becomes white although it must be supposed to contain the same quantity of carbon; hence, as a general rule, he concludes that color indicates the treatment to which iron has been subjected, and in some cases only the quantity of carbon. Mr. May coincides in considering the question of strength to be very much reducible to the quantity of carbon contained in the iron, as some of the tenderest iron skilfully treated will produce some of the strongest castings. Messrs. Stephenson and Stirling mention that the fluidity of Berlin iron is due to the presence of arsenic, and the latter has observed that manganese mixed artificially with cast iron closes the grain, and is an improvement both to cast iron and steel. On wrought iron the effect of manganese is stated to be to give it the hot-short property, while cold short is produced by the presence of a small quantity of phosphorous; and the admixture of arsenic renders wrought iron hard and brittle.

LITERARY NOTICES.

Graham's Magazine, for July, has appeared upon our table, through the politeness of Messrs. Dewitt & Davenport, Tribune Buildings. It contains a beautiful portrait of Jenny Lind, engraved on steel by W. H. Mote, of London, and is said to resemble the original more perfectly than any other ever presented to the American public. The engraving is a splendid specimen of the art: it also contains an elegant plate of Paris Fashions, a portrait of the Editor, Mr. Graham, a tinted view of Lake Como, which, together with brilliant contributions from Bryant, Whipple, Lowell, Sims, Giles, Tuckerman, Mrs. Embury, and a number of others, makes it decidedly the most complete number in the magazine way ever issued. We heartily wish Graham success—he is worthy of it.

Manual of Health.—About a year since we accidentally met with a small volume published by the "Graefenburg Company," of this city, called the "Manual of Health," and by a slight perusal of it we discovered many testimonials to the work by our first physicians, which induced us to get a copy of the book. We have had the Manual constantly in use in our family since we procured it, and certainly it is the most reliable family physician we ever employed. This book gives the proper remedies to be employed in various diseases, explains the nature of most vegetable and mineral substances used as a medicine, the effect they produce upon the system, and the quantity to be used in the various stages of disease; it also contains elaborate and correct receipts for the manufacture of cologne and lavender water, washes for the teeth, &c.

The "Manual of Health" is an epitome of medical science, and should be in the possession of all, except physicians—and we think it might be read by many of them without impairing their previous knowledge. Copies of the "Manual of Health," containing 300 pages, may be had at this office, bound in cloth, for 75 cents, or sent by mail in paper covers for 50 cents. Address Munn & Co., post-paid, New York.

The Steward—A new romance from the pen of Henry Cockton, author of "Sylvester Sound," "Valentine Vox," and numerous other humorous publications: published by Long & Bro., 43 Ann st., price 50 cents, 200 pages. All patronizers of light literature, will be entertained by reading "The Steward."

No 18 of Shakspeare's Dramatic Works, published by Phillips, Sampson & Co., Boston, is now ready, it contains the play of King Richard II. Price 25cents: for sale by Dewitt & Davenport.

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